

**IN THE CLAIMS:**

Claims 1 to 9. (CANCELLED)

10. (NEW) An analyzing system for the detection of reducing and oxidizing gases in a carrier gas having an oxygen content not exceeding 30 ppm of oxygen, which comprises:

a plurality of detecting means,

calibrating means,

a sealed measuring chamber,

means for connecting said carrier gas to said measuring chamber, and

means for processing and control of acquisition and data recognition,

wherein said gas-detection means are sensors based on semiconductor-type metal oxides, which are located into said measuring chamber,

wherein the measurements on said carrier gas are taken inside said chamber without the need to introduce additional oxygen into the sensors' structures, when said sensors are exposed to a carrier gas flow of constant value; and

wherein said means of processing and control include a system of real-time recognition of said gases, which provides a diagram with delimited decision zones, in which the measurements taken on said carrier gas are situated and identified.

11. (NEW) An analyzing system according to Claim 10, wherein said calibration means include a plurality of patterns or calibrated gases at least equal in number to the number of reducing and oxidizing gases that have to be detected in the carrier gas, wherein the response of the plurality of sensors to the measurements of

patterns includes the obtaining of a vector of conductance variation for each calibrated gas or standard.

12. (NEW) An analyzing system according to Claim 11, wherein said recognition means comprises obtaining a learning matrix resulting from grouping the conductance variation vectors of the measurements taken with the plurality of patterns or calibrated gases.

13. (NEW) An analyzing system according to Claim 12, wherein said recognition means identifies the measurements taken in the carrier gas, according to the algorithm:

- obtaining a vector of conductance variation for the plurality of sensors;
- auto scaling of the vector with mean values and variances used to auto scale a learning matrix obtained from the patterns or calibrated gases;
- projecting the auto scaled vector onto a space of the principal components extracted on the basis of the learning matrix obtained with the calibration means; and
- identifying a type of response, dependent upon the position occupied by the vector.

14. (NEW) An analyzing system according to Claim 13, wherein the type of response identified by the recognition means includes the responses of pure carrier gas, contaminated carrier gas at alert level due to at least one contaminant and contaminated carrier gas at alarm level due to at least one contaminant.

15. (NEW) An analyzing system according to Claim 10, wherein said processing and control means include a microprocessor that corrects temporary deviations of the sensor responses and controls and processes the data that permit

detection of the presence of reducing and/or oxidizing gases at various pre-established levels.

16. (NEW) A analyzing system according to Claim 10, wherein said connecting means comprise a plurality of electrically operated valves and connecting pipes to permit the carrier gas or calibrated gases to flow through the chamber that contains the sensors.

17. (NEW) An analyzing system according to Claim 10, wherein the carrier gas is carbon dioxide.

18. (NEW) An analyzing system according to Claim 10, wherein utilization of the gas sensor based on semiconductor-type metal oxides is proposed for detecting reducing and oxidizing gases present in a carrier gas having an oxygen content not exceeding 30 ppm of oxygen.

19. (NEW) A system for detecting reducing and oxidizing gases in a carrier gas having an oxygen content not exceeding 30 ppm of oxygen, which system comprises:

a plurality of sensors based upon semiconductor-type metal oxides, located in a sealed measuring chamber, which sensors work without the need to introduce additional oxygen into the sensors' structure;

calibration means comprising a plurality of patterns or calibrated gases at least equal in number to the number of reducing and oxidizing gases that have been detected in the carrier gas; and

means for processing and control of acquisition and data recognition,

wherein said system implements calibrations in an automated way that is transparent to a user/operator of said system, wherein said means of processing and control include a system of real-time recognition of said gases, which provides a diagram

with delimited decision zones, in which the measurements taken on said carrier gas are situated and identified, wherein the response of the plurality of sensors to the measurements of patterns includes obtaining a vector of conductance variation for each calibrated gas or standard, and wherein said recognition system comprises obtaining a learning matrix resulting from grouping the conductance variation vectors of the measurements taken with the plurality of patterns or calibrated gases.

20. (NEW) An analyzing system according to Claim 19, wherein said recognition system identifies the measurements taken in the carrier gas, according to the algorithm:

- obtaining a vector of conductance variation for the plurality of sensors;
- auto scaling of the vector with mean values and variances used to auto scale a learning matrix obtained from the patterns or calibrated gases;
- projecting the auto scaled vector onto a space of the principal components extracted on the basis of the learning matrix obtained with the calibration means; and
- identifying a type of response, dependent upon the position occupied by the vector.

21. (NEW) An analyzing system according to Claim 20, wherein the type of response identified by the system includes the responses of pure carrier gas, contaminated carrier gas at alert level due to at least one contaminant and contaminated carrier gas at alarm level due to at least one contaminant.

22. (NEW) An analyzing system according to Claim 19, wherein said processing and control means include a microprocessor that corrects temporary deviations of the sensor responses and controls and processes the data that permit detection of the presence of reducing and/or oxidizing gases at various pre-established levels.